

AMENDMENTS

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

- 1-8 (Canceled)
9. (Previously Presented) A method of preparing water-insoluble α -1,4-glucans comprising contacting a reaction mixture comprising sucrose with an enzyme having amylosucrase enzymatic activity under aqueous, buffer-free conditions to provide a product mixture comprising water-insoluble α -1,4-glucans and fructose, wherein at least 70% of said sucrose is converted to α -1,4-glucans and fructose within 23.5 hours.
10. (Original) The method of claim 9 in which the enzyme having amylosucrase enzymatic activity is an enzyme from a prokaryotic organism.
11. (Original) The method of claim 10 in which the prokaryotic organism belongs to the genus *Neisseria*.
12. (Original) The method of claim 11 in which the prokaryotic organism is *Neisseria polysaccharea*.
13. (Original) The method of claim 9 in which the enzyme having amylosucrase enzymatic activity is recombinantly produced.
14. (Previously Presented) The method of claim 9 in which the enzyme having amylosucrase enzymatic activity has a purity, in U/ μ g of purified protein, of at least 80%.
15. (Original) The method of claim 9 in which the enzyme having amylosucrase enzymatic activity is bound to a support material.

16. (Original) The method of claim 9 which further comprises adding an external carbohydrate acceptor to the reaction mixture.

17. (Original) The method of claim 16 in which the external carbohydrate acceptor is added at the beginning of the conversion.

18. (Original) The method of claim 17 in which the external carbohydrate acceptor is selected from linear or branched polysaccharides.

19. (Original) The method of claim 18 in which the external carbohydrate acceptor is selected from dextrin, glycogen, or amylopectin.

20. (Previously Presented) A method of preparing water-insoluble α -1,4-glucans comprising contacting sucrose with an amylosucrase under aqueous, buffer-free conditions to provide water-insoluble α -1,4-glucans and fructose, wherein at least 70% of said sucrose is converted to α -1,4-glucans and fructose within 23.5 hours.

21. (Original) The method of claim 20 in which the amylosucrase is from a prokaryotic organism.

22. (Original) The method of claim 21 in which the prokaryotic organism belongs to the genus *Neisseria*.

23. (Original) The method of claim 22 in which the prokaryotic organism is *Neisseria polysaccharea*.

24. (Canceled)

25. (Previously Presented) The method of claim 14 in which the enzyme has a purity, in U/ μ g of purified protein, of at least 90%.

26. (Previously Presented) The method of claim 25 in which the enzyme has a purity, in U/ μ g of purified protein, of at least 95%.